Next 1 Page(s) In Document Denied

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TWENTY-FIFTH ANNIVERSARY OF LEIS i/n M. A. BONCH-BRUYEVICH

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This October is the twenty-fifth anniversary of the founding of the Leningrad Electrotechnical Institute of Communications imeni M. A. Bonch-Bruyevich (LEIS).

From the earliest days of the institute's existence its activity was indissolubly linked with the history of the rapidly developing techniques of communications in the Soviet Union. The initial period of the institute's activity lies in the years of the first five-year plan, when The Communist Party and the Soviet government initiated the struggle for fulfillment of the historic decisions of the Sixteenth Party Congress for the socialist industrialization of the country. In those very years communications facilities expanded considerably: lines of wire communications and radio communications increased, the introduction of new techniques began, powerful radio stations were developed and erected, etc.

The creation of an institute of communications was dictated by the pressing need for engineering cadres devoted to socialist construction and able to insure skilled service in communications techniques at the enterprises, able to develop and create new communications equipment, to guide production under the new conditions.

With the organization of the institute four faculties were created -- telephone, telegraph, radio engineering, and engineering-economic -- and a total of only four chairs within them.

The most pressing problems of the period of organization were the provision of a laboratory base and the selection of professorial-instructional cadres. The instructing staff consisted in part of teachers coming to the institute from advanced courses in communications. Also attracted to the teaching staff was a group of the better known specialists of the Central Radio Laboratory -- V. V. Tatarinov, B. A. Ostroumov, A. M. Kugushev, and others, with M. A. Bonch-Bruyevich at the head. There were also prominent specialists from other laboratories, institutes, and plants: A. L. Mints, A. A. Pistol'kors, N. N. Krylov, A. A. Karkevich, V. F. Vlasov, M. G. Tsimbalistyy, V. I. Velichutin, I. S. Gonorovskiy, Z. I. Model', I. Kh. Nevyazhskiy, M. P. Dolukhanov, V. B. Romanovskiy, N. B. Zeliger, L. B. Slepyan, et al.

An outstanding part in organizing and strengthening LEIS in the first period of its existence was played by that pioneer of Soviet radio engineering, that great scientist and investigator, M. A. Bonch-Bruyevich, beginning his work at the institute in 1931. In 1941, by decree of the Soviet government, the institute was named after this noted scientist.

In the first years of the institute's existence more than 15 laboratories were created, chiefly in the general technical disciplines, and a number of laboratories of special chairs were equipped.

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The participation of important specialists in radio engineering and wire communications in the activity of the institute to a large degree determined the direction of the scientific, procedural, and educational work, insured the high quality of training of communications engineers, and created the necessary conditions for the training of scientific cadres.

This end was also facilitated by the publication of such capital (for the time) works as Korotkiye volny [Short Waves] by M. A. Bonch-Bruyevich, Lampovyye generatory i peredatchiki [Vacuum-Tube Oscillators and Transmitters] by B. P. Aseyev, Teoriya i raschet radiopriyemnykh ustroystv [Radio Receiver Theory and Calculations] by N. N. Krylov, Korotkovolnovyye priyemnyye antenny [Short-Wave Receiving Antennas] by A. A. Pistol'kors, Elektronnyye lampy [Electron Tubes] by V. P. Vlasov, Elektroakusticheskaya apparatura [Electroacoustic Apparatus] by A. A. Karkhevich, Osnovy teorii telefonnoy peredachi [Basic Theory of Telephone Transmission] by M. G. Taimbalistyy, et al.

The first class of 74 communications engineers graduated in 1932 (from the admissions of 1929).

In the years immediately following there was completed the organization of new chairs at the institute. In 1937 the chair of television was established. The organizer and leader of this chair up to the present time is that noted Soviet scientist, Doctor of Engineering Sciences, and highly esteemed promoter of science and engineering, Professor P. V. Shmakov.

During this time the chairs of the institute, enriched by such highly skilled specialists as V. I. Siforov, G. A. Zeytlenok, E. V. Selyakh, P. N. Ramlau, K. P. Yegorov, and A. D. Kratirov, became principal links wherein were concentrated the educational-procedural and scientific research activity. During 1934-1941 more than 40 projects of actual significance for the national economy of the USSR were completed at the institute. During this period many scientific works were written and published by the professors and teachers of the institute -- monographs, textbooks, and teaching aids. Moreover, in the years 1934-1937 the institute published 13 scientific-technical symposia in which 152 scientific articles appeared.

In 1936 the institute was empowered to accept the defense of theses and to confer the degree of candidate in technical sciences. In the spring of the following year the first group of graduate students of LEIS appeared in defense of candidate dissertations.

By 1941 the institute already had more than 40 laboratories and scientific offices, substantially ensuring the educational process. In the intervening years the teachers of the institute had defended 16 candidate and 6 doctoral dissertations. In addition, degrees were conferred and status was conferred upon a large number of important specialists without defense of the dissertation. By this time 21 students had concluded their graduate studies and defended their dissertations.

In the first days of the Great Patherland War the greater part of the students and teaching staff went as volunteers into the ranks of the Soviet Army.

At the end of the war, returning from the evacuation, the institute set about restoring its badly damaged premises. For the first two or three years reestablishment of the laboratory-technical base, begun at an earlier time, was continued. At the same time its development proceeded

STAT

on the basis of new techniques. By 1950 the laboratories were not only completely restored and considerably reinforced with new equipment and installations. In addition, several laboratories and training offices were created.

Many of the teachers working at the institute before the war did not return to it for various reasons. Hence there arose the urgent task of selecting and training the teaching staff. As a result of the steps taken the staff of the chairs was soon manned by skilled teachers. The increase in the professional instructional cadres, especially in the qualitative sense, continued in the ensuing years. Thus, in the 1954-1955 school year there were already 11 professors and 76 candidates in technical sciences at the institute. During the postwar period 53 persons concluded their graduate studies with the defense of their dissertations.

Owing to the restoration of the laboratory base and its development on a higher technical foundation the institute found it possible to expand its research activity. In the first postwar years, in fulfilling the assignments of the government and the Ministry of Communications, the institute completed several tens of scientific research works of great importance to the national economy.

The research was assigned an especially intensive character in 1949 after the famous appeal of the industrial workers and scientific and engineering workers of Leningrad and Leningrad Oblast for technical progress and creative cooperation on the part of scientists, workers, and engineers. The projects of the last five or six years are making a valuable contribution to technical progress and the introduction of new techniques into the national economy.

The coworkers of the chair of telephony designed and made a model of a letter-sorting machine. The chair of antennas and propagation of radio waves created an automatic ionosphere station of the radar display type with a wide frequency range. The chair of radio transmitting installations, led by Docent I. N. Fomichev, achieved a number of developments associated with increasing the qualitative indexes of radio broadcasting stations.

Docent L. M. Gusev, director of the chair of theory of mechanisms and machine parts, designed a pole loader. A draft plan for a ladder hoist was prepared at this same chair.

Under the direction of Professor A. V. Rimskiy-Korsakov research for the creation of qualitative norms for the actual radio broadcasting tract is being conducted.

The chair of physics, directed by Docent I. M. Metter, has developed and produced a remotely controlled magnetometer for the measurement of extremely small magnetic fields. The workers of the chair of radio engineering have made a radio device for objective tuning of musical instruments. A number of chairs took part in the creation of a single-conductor radio device for core sampling in the oil industry. This device, insuring high-quality prospecting operations in the drilling of oil wells, is presently produced by the Ministry of Petroleum Industry and is supplied to the petroleum industry.

The chair of television at the institute occupies a special place in view of the scope of research activity and the number of scientific

workers, graduate students, and students engaged in this work. Here a number of important problems have been solved. For example, monochromatic tridimensional television apparatus have been developed; a laboratory model of a phototelegraph device with electronic bidemensional scanning was created, on which in the last year black-and-white and, a little later, color images were obtained. At the present time the chair is engaged in the development of phototubes and cathoderay tubes for the above apparatus and is continuing work on color phototelegraphy.

Television is finding increasingly wide use in the various branches of the national economy. Developmental work is now being concluded on television equipment for the petroleum industry. At the end of the current year this equipment will be tested in well drilling.

On the basis of methods proposed by Professor P. V. Shmakov a draft plan was prepared for airborne television relay for the exchange of television broadcasts over great distances. Fairly intensive theoretical and experimental investigation is in progress on a number of problems in the creation of a system of color television with a simultaneous color tranamission compatible with the black-and-white system of television. Graduate studies as a rule constitute part of the research work conducted by the chair of television.

A group of graduate students has designed a television set with a large screen, made an instrument for the observation of objects in a liquid medium with low transparency, etc.

This summary of projects completed and in progress, while far from complete, shows that the scientific research performed at the institute is associated with the solution of important technical problems. However, the numerous skilled specialists of the institute could do much more for the national economy if a number of shortcomings impeding the scientific work were eliminated.

In addition to the large number of research operations performed upon assignment by the government and the Ministry of Communications USSR, the professorial-instructional personnel also perform work under the agreement for creative cooperation with communications enterprises. During the last three years alone, under 61 agreements for creative cooperation, 74 projects were completed. The instructors of the institute deliver thematic lectures for the engineering and technical workers of communications enterprises; they provide consultation on the more important, new problems of radio communications and wire communications.

During the last two years more than 60 textbooks, teaching aids, and monographs were published by the professors and instructors of the institute. In addition, a large number of scientific works appeared in various periodical publications and in the symposia of LEIS.

Over a quarter of a century the institute has turned out more than four thousand highly trained engineers, now successfully serving in the various sectors of socialists construction. It is difficult to find in the USSR a receiving or transmitting radio center, a large telegraph station, an automatic city or intercity exchange where former pupils of LEIS are not working. Many of them have the responsible duties of leaders and chief engineers of communications enterprises, leaders and chief engineers of oblast administrations, many of them work in industry and in scientific research institutes. They have become important specialists and scientists.

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The Communist Party and the Soviet government devote much attention to the training [illegible] without interrupting production. Our institute has [illegible] In January of the current year the institute opened [illegible] division. In the faculties of the day, evening, [illegible] divisions of the institute the number of persons [illegible] is three times that of 1941.

In 1963 the [illegible] a three-year course to make engineers of technicians [illegible] considerable work experience at communications enterprises [illegible] to the institute.

The decisions of the Communist Party and the Soviet government for the university [illegible] possibilities for fruitful activity on the part of the [illegible] and responsible tasks confronting the personnel [illegible] require a further improvement in the work of teaching, a [illegible] spirit of criticism of the shortcomings which still exist, [illegible] the creative activity of scientists for further technical [illegible] facilities.

The [illegible] teachers, students, party and social organizations of the institute are making ever greater effort to improve the activity of the institute, to raise the level of the training of engineering and scientific [illegible] in cooperation with the innovators of communications enterprises [illegible] with the tasks presented by the July Plenum of [illegible] of the Communist Party of the Soviet Union.